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On the Indian Crested Porcupine, *Hystrix indica* (Kerr, 1792) in Turkey (Mammalia: Rodentia)

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Abstract: This study presents some data about ecological, biological and taxonomical characteristics of *Hystrix indica* (Kerr, 1792) from Turkey. For this purpose characteristics of burrow, skull, tooth and measurements of external and cranial characters of two female *H. indica* from Turkey were investigated. It was concluded that our specimens are between the Middle East and Indian sub-region specimens in terms of morphometrical. It was also determined that there were roots in stomach contents of specimens.

Key words: *Hystrix indica*, porcupine, ecology, biology, taxonomy, Turkey

INTRODUCTION

The Indian crested porcupine, *Hystrix indica* ranges from Arabia (Iraq, Iran, Palestine, Israel, Syria, Lebanon, Jordan) to Turkey and from the southern and eastern states of the former Soviet Union to the south of the Indian subcontinent (Ellerman and Morrison-Scott, 1951; Corbet, 1978; Harrison and Bates, 1991). Although some undefined registration, which is related to shaded quills of this species had been given, from Turkey, Gülen (1952) and Mursaloglu (1976) were given definite registration from Icel (Mersin) and Gaziantep. Arslan (2006) also studied karyology of this species from Turkey.

This study aims to obtain some information about ecological, biological and taxonomical characteristics of *H. indica* from Turkey.

MATERIALS AND METHODS

The two specimens (female) obtained as injured by hunters from Bozyazi (Icel) and Ceyhan (Adana) in 2005. Age determination was made according to the methodology described by Morris (1970, 1972). External and cranial measurements (mm) were taken from each specimen in the Laboratory. Thirteen measurements were taken from each of the skulls with a calliper with accuracy of up to 0.1 mm. The characters are: Total length (TBL), Tail Length (TL), Hind Foot Length (HFL), Ear Length (EL), Codylobasal length (CBL), Nasal Length (NL), Occipitonasal Length (ONL), Palatal Length (PL), Frontal Length (FL), Parietal Length (PEL), Diastema Length (DL), Zygomatic Breadth (ZB), Interorbital Constriction (IC), Braincase breadth (BCB), Upper Toothrow Length (UTL), Lower Toothrow Length (LTL), Mandible Length (ML). The skulls of the specimens were deposited in the Faculty of Science and Art, at Selcuk University.

RESULTS AND DISCUSSION

Five burrows which belong to *H. indica* were investigated in Ceyhan and Bozyazi. There was a river or puddle near these burrows which were carved by porcupines. The burrows were found on the side of heavily forested areas. Entrance of burrows had 40 cm height. This height went on throughout tunnel which is average 4.5 m length (Fig. 1). According to Gülen (1952) and Mursaloglu (1976) porcupine live in burrows which were done by carving the soil, on the side of scrub areas on the south and west region of Turkey. Their data about burrow characters is similar to ours.

It was determined that there were roots in stomach contents of our specimens. Gutterman and Herr (1981) stated that most of diets of the Indian crested porcupine were bulbs of plants in Israel. Kadhim (1997) reported that the main food of *H. indica* from Iraq consists of plant materials, such as roots, seeds, tubers, buds, small branches of leaves, wild fruits and insect and small vertebrate. However, it was determined that there were no animal remains in the stomach contents of our specimens.

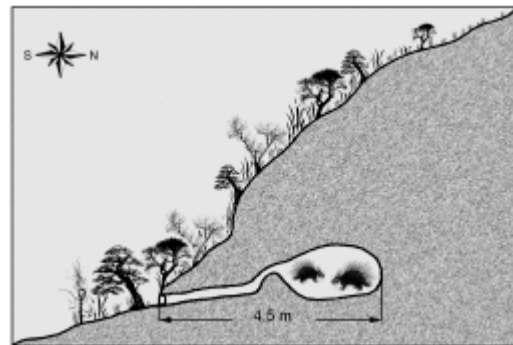


Fig. 1: The burrow of *Hystrix indica* from Ceyhan

Table 1: Measurements of some external and cranial characters (mm) of *Hystrix indica* in Turkey (two female specimens from Bozyazi and Ceyhan) in comparison with Middle East (Iraq, Jordan and Lebanon) (Harrison and Bates, 1991), Indian sub-region (Nepal, Indian, Pakistan, Sri Lanka) and *H. cristata* (Italy, North Africa and Sicily) (Angelici *et al.*, 2003) (n: number of specimen)

Characters	<i>H. indica</i>			<i>H. cristata</i>		
	Turkey (This study) (n = 2)	Middle East (n = 3)	Indian sub-region (n = 20)	Italy (n = 24)	North Africa (n = 11)	Sicily (n = 11)
TBL	888.00	882.30 (n = 3)	-	-	-	-
TL	146.00	143.30 (n = 3)	-	-	-	-
HFL	96.00	93.60 (n = 4)	-	-	-	-
EL	43.00	42.00 (n = 3)	-	-	-	-
CBL	136.45	138.20 (n = 9)	148.60	135.20	135.60	130.50
NL	65.62	-	70.80	77.80	80.30	76.30
ONL	136.92	-	-	-	-	-
PL	43.25	-	50.30	45.80	46.10	45.70
FL	42.22	-	46.20	24.50	26.10	25.20
PEL	26.75	-	34.90	29.20	28.50	28.20
DL	40.32	-	-	-	-	-
ZB	82.50	76.80 (n = 7)	-	-	-	-
IC	58.88	57.70 (n = 9)	59.80	56.60	60.90	55.90
BCB	56.50	54.30 (n = 9)	-	-	-	-
UTL	34.00	32.70 (n = 9)	-	-	-	-
LTL	35.10	33.50 (n = 8)	35.60	34.10	33.50	32.10
ML	99.58	105.60 (n = 8)	103.50	91.60	92.40	88.50

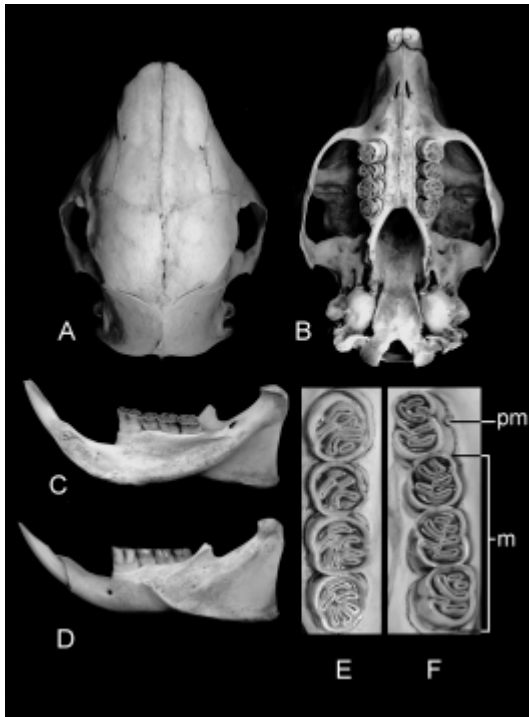


Fig. 2: The skull of *Hystrix indica*. Dorsal (a), ventral (b) view and mandible (c and d), upper (e) lower and (f) teeth (pm: premolar, m: molar)

Skull of *H. indica* is very robust, nasals are long and broad, zygomatic arches are short and deep, zygomatic plates are narrow, tympanic bullae are small and mandible

is massive. The dental formula is $i\ 1/1, pm\ 1/1, m\ 3/3 = 20$. In our specimens PM^1, M^1, M^2 have 5, M^3 has 6 and PM_1 has 4, M_1 has 5, M_2 has 6, M_3 has 5 enamel islands on the chewing surface (Fig. 2).

Although external measurements of our specimens were longer than those of data of Gülen (1952) (TBL: 745, HFL: 98, EL: 45, CBL: 134, NL: 67) and Mursaloglu (1976) (TBL: 660, TL: 80, HFL: 90, EL: 40), cranial measurements of our specimens were close to data of Gülen (1952). This differences probably resulted from the different ages of specimens. External and cranial characteristics (Fig. 2) of specimens of *H. indica* in Turkey are consistent with those descriptions made by Harrison and Bates (1991). All the external and cranial measurements of Turkish specimens given in this investigation, except for condylobasal and mandible length, are longer than those given by Harrison and Bates (1991) in the Middle East. Angelici *et al.* (2003) compared skull measurements of adult 46 *H. cristata* from mainland Italy, Sicily and northern Africa and skull measurements of adult 20 *H. indica* from Indian sub-region (Nepal, India, Pakistan, Sri Lanka) as morphometric. Depending on the results of their study, all *H. indica* specimens were grouped apart from three groups of *H. cristata* (Angelici *et al.*, 2003). Interorbital constriction, condylobasal, nasal, palatal, frontal, lower toothrow and mandible length of our specimens were lower than those of *H. indica* specimens in Indian sub-region. For this reason, it was concluded that our specimens are between the Middle East and Indian sub-region specimens in terms of morphometrical. However, condylobasal, palatal and parietal length of our specimens were similar to that of *H. cristata* in mainland Italy, Sicily and northern Africa (Table 1).

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